

L. M. Alden

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SEABROOK ON THE COTTON PLANT.

A MEMOIR on the Origin, Cultivation and uses of Cotton, from the earliest ages to the present time, with especial reference to the Sea-Island Cotton Plant, including the Improvements in its Cultivation, and the preparation of the Wool, &c. in Georgia and South-Carolina; read before the Agricultural Society of St. John's, Colleton, November 13th, 1843, and the State Agricultural Society of South-Carolina, December 6th, 1843, and by both Societies ordered to be published. By Whitemarsh B. Seabrook, President of the State Agricultural Society of South-Carolina, price 25 cents. For sale by
A. E. MILLER.
 March 1

 **The Subscribers to the Southern Agriculturist are reminded, that the Price of the Journal was reduced last year to all those who paid in advance; those who are still in arrears for this and former years are respectfully solicited to make their payments.**

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THE SOUTHERN AGRICULTURIST.

(NEW SERIES.)

Vol. IV.

FOR SEPTEMBER, 1844.

No. 9.

From the New-England Farmer.

SAUSSURE'S PROOFS OF ASSIMILATION OF ABSORBED HUMUS, AND REMARKS ON LIEBIG'S THEORY.

(Concluded from page 267.)

Saussure adduces in proof of assimilation of humus, the fact that the starch of wheat flows into the growing plant to nourish it. The starch in the "*endospermium*" may be detected by iodine, so long as it is unexhausted, but when it has passed into the plant, iodine detects no starch in the sap. The young plant owes not its first development, in any considerable degree, to carbonic acid and water, "for its weight has not been increased by them, even admitting into the calculation that carbon which it lost during this process of growing." This starch has not been absorbed by *roots*. Here is then a distinction. On the other hand, this starch is not essentially requisite for the growth of wheat, for "if the greater part of the endospermium be removed from the germinating wheat, and the roots of the germinating seed be put into mould, they will at the commencement make slower progress than the perfect grain, but such progress will afterwards be sufficiently visible to prove a similar development, and that the extractive introduced by the roots, has replaced the starchy fluid." Saussure fortifies this by the observation, that in fields where the albumen of seed is destroyed, either by insects or by putrefaction, the young shoots absorb organic matter from the soil. "Since, then, the assimilation of the elements of the endospermium has been proved, that of the extractive of mould, which is introduced by the roots into a plant, is equally proved."

Saussure, in farther proof, adds, that the colorless transpiration of his plants showed a slow deposition of traces of organic matter, not amounting to a twentieth part of that absorbed by the plant. Salts of ammonia and lime were also found in the transpired fluid, in proportion of .0462 grs. to 926.04 of fluid. The plants absorbed no azote from the air, and Saussure points out some sources of error in Baussingault's experiments on this subject. He then goes into an examination of Liebig's views, that carbonic acid, water, and salts are the sources, the only sources of the nutrition of plants. Saussure admits that plants can increase their organic

substance by water and air only, but adds, that such plants are of no agricultural value. He objects to experiments adduced in proof of Liebig's view, because they were made on *young plants*. "By employing such young plants, their nutrition is for the most part— independent of the impurity of spring water—attributable to the transference of the organic matters of these small plants into all those parts which are in course of development." The results are different if the experiment is made with *seeds*, nourished by distilled water and atmospheric air. Saussure thus found, in glass vessels filled with pure sand, beans grew and increased their dry vegetable matter in proportion of twice their weight, while peas cultivated in this manner, gave plants whose dry vegetable matter was $3\frac{1}{4}$ times the weight of the seed; while in vegetable earth, the increase was in proportion of from 1 to 60. Whether fructification has taken place or not, the *smallness* of plants, obtained by distilled water and air, is a result which cannot be denied. Liebig founds an objection to Saussure's view, upon the insolubility of humus in water. In answering this, Saussure also opposes Liebig's view of the source of azote. S. observes: "*Mould* nearly infertile, exhausted by the filtration of rain-water, cannot furnish any considerable quantity of extractive matter. It always, however, contains a small quantity, which may be discerned by its yellow color, and taste, after the water in which it has been soaked is evaporated." This matter contains azote, which it furnishes to plants. It contains, also, phosphate of lime and other salts, and, being soluble in water, "has a powerful action on the nutrition of plants." "This nourishing property must not, however, be ascribed in preference to the soluble extract which can be drawn immediately from a *similar earth*: it contains a much larger quantity of organic matter, which at first is insoluble in water, and which is imperceptible to the eye, but which, however, by its solubility in carbonate of potash, or by combustion, can be detected. When moistened, this substance is continually in a state of slow fermentation—forming an extractive matter easily soluble in water, and furnishing the plant with a continual source of nourishment." Saussure continues, that if this process takes place, without free access of air, the quantity of soluble nutriment thus prepared, is much more limited. "Another disadvantage of imperfect contact is, that it prevents the escape of acetic acid, which is prejudicial to the growth," finding no base with which to combine. Saussure attributes the efficiency of irrigation with "muck water" to its property of inducing that fermentation which produces from the insoluble, a soluble organic matter. He finds this extractive soluble matter in charcoal, which he found better than sand in forwarding plants, though he allows that its power of condensing ammonia and carbonic acid, here play the greatest part. Let us see, however, the use he assigns to ammonia. "We do not deny, in other respects, the beneficial influence of ammonia as a component part of dung,

marl, burnt clay, &c.; we have only to say, that its chief use is, not to be totally absorbed, but as a means of dissolving humus and those insoluble organic matters contained in the soil and atmosphere": "the bodies floating in the air perform a part in the vegetable kingdom." This atmospheric matter furnishes earths, salts, carbon, oxygen, hydrogen, *azote*.

"The azote of extractive matter, so necessary for the growth of plants, escapes sometimes during their growth, as gas, or by the rapid fermentation produced by porous bodies in an atmosphere of carbonic acid and azote." This loss is replaced in the succeeding vegetation, by the condensation of atmospheric azote, either "1st, by the porous organic substance; 2nd, by oxides of iron and manganese in vegetable earths; or, 3d, by the electricity of thunder storms, which produces sulphuric acid and ammonia." If these all co-operate in vegetation, then, since we have no proof, as yet, of the direct assimilation of ammonia, nor of sulphuric acid, it must, says Saussure, "be inferred that plants appropriate to themselves the dead matter of plants in order to produce combinations, which are very similar to those which they receive for their nutrition from mould." Saussure then adds, in conclusion to his observations—"1st. That fertile soil contains a mixture of soluble and insoluble organic matter; and that the introduction of the former by the roots into a plant, is a powerful aid to that nutrition which is afforded by the atmosphere and water. 2nd. That the insoluble organic matter of soil, always being in greater quantity than the soluble, undergoes by means of water, slow fermentation, which then furnishes nourishing soluble matter, which partially and gradually replaces the insoluble. 3d. That plants receive their azote almost entirely by absorption of soluble organic matter, direct experiments proving that they do not assimilate it in form of gas, in any considerable quantity, and that it is not contained as ammonia in the distilled water, which they are allowed to dissolve. 4th. That there is a difference between those colored substances serviceable for the nourishment of plants, and those which have not this property. The former are changed in color, mix with the plant; the latter enter the plant, but undergo no decomposition. As it has been proved, that those colored extractive matters, serviceable for the nutrition of plants, are absorbed by plants, and that neither in that which remains after absorption, nor in the transpiration from the plant, nor in the surrounding air, nor in the plant itself, are they found in their previous unchanged state; so we must presume that they have disappeared in consequence of the plant assimilating part of their elements."

I have thus, Mr. Editor, laid before you the experiments of Saussure, and Liebig's summary of his remarks, in their own language. I have condensed all their other remarks, and the whole is now before your readers. Perhaps I ought not to have added, in your last paper, any observations of my own, but the

occasion seemed fit, and I shall defer any further remarks until a future day—merely adverting now to the coincidence between the views of Saussure and those generally prevalent in this country.

Lowell, April 25, 1844.

S. L. D.

From the (Columbia) South-Carolinian.

OVERSEERS.—No. III.

I have said that no radical improvement can take place in our agriculture, until the planters take the direction of their agricultural operations entirely into their own hands, and overseers are made to look altogether to their employers for directions, and to obey them when received. Overseers are often changed every year. A few may be retained four or five years; but the average length of time they remain on the same plantation will not exceed two years. What improvements can be effected—what amelioration of treatment, either of negroes or lands, can be expected, if overseers are invested with the chief authority, and changed every two years? Each one has his peculiarities in managing affairs—plants differently, works differently, establishes differently rules for the government of negroes, wants other implements, and has different views about feeding work-animals and rearing stock; while none of them feel, or can be expected to feel any *permanent interest* in their employer's concerns. Unless, therefore, the latter establishes a system of his own, rigidly adheres to it, and compels all his overseers to conform to it, it is obvious that everything must be and continue at sixes and sevens, with a total or partial revolution every one, two or four years. It is not enough, that he should exercise a sort of general superintendence. That may save him from speedy ruin, and perhaps even enable him to get along tolerably well; but if he desires *really to improve*, he must descend to particulars, and infuse into every plantation operation, the spirit of an intelligent guardian of a permanent interest.

The experience of every planter will prove that every year an overseer remains on a place the more capable he becomes of managing it properly. He not only learns the character of the soils on it, and the best way of preparing and cultivating them, and becomes acquainted with the negroes; but he also acquires a sort of home feeling, and takes mechanically a greater interest in the welfare of everything. How much better, then, would every thing be conducted, if the Planter himself took upon him the steady, uniform and entire direction of all his affairs, and pursued a system of his own, even in the smallest matters for a series of years.—Unfortunately, too, it happens, that few overseers can be long

retained on the same place. They are fond of change. If not, they become careless; or if they think you have a high opinion of them, demand such an increase of wages as you cannot give; and in case you refuse, will leave you, and even take less from another, rather than you. Such is the disposition of many of them.

These difficulties, like almost all others, would be overcome, by the planter assuming the chief management himself. The overseer would see that you were in no way dependent on him; could not become careless, without speedy detection; and would be more contented to remain.

It must not be supposed that I wish to degrade the overseer, by restricting him to a position distinctly subordinate. Almost every civil officer requires a deputy; the merchant has his clerk; the surgeon his assistant; the lawyer his junior partner; the general his aid-de-camp. Nor was it ever supposed any disparagement to the persons who fill these respectable and much-sought-for positions, that they must take orders from their principles, and strictly conform to them. What, on the contrary, would be thought of the deputy, who desired to control his chief in his official duties?—of the clerk, who attempted to regulate the business of his employer?—of the aid, who dictated or changed the orders of his commander? Such things would shock the common sense of every man; yet they are no less intolerable, than the demands so often made by overseers, to control the planter's operations on his own plantation. And that such a thing should ever be thought of, much less allowed, proves the utter want of any system, in the management of our agricultural affairs.

I have perhaps said too much on the propriety of the Planter managing his own business, and requiring obedience to orders from his deputy, aid-de-camp, second in command, manager, steward, bailiff, or overseer, whichever title he may choose to be designated by. Every planter will assent, at once, I am sure, to the proposition. The difficulty is, that so few will carry it out, and one or two cannot do it. Overseers who can choose employers, which most overseers worth having can do, will not submit to it, if they can avoid it. It is necessary, therefore, that most if not all planters should unite in carrying out the system; and what I have written has been in the hope that it might possibly have some influence in bringing about so desirable a consummation.

NO. IV.

I have taken up so much of your valuable space with my communications, that I will close them with this number. I shall leave much unsaid that might be said, on the topic discussed. One great difficulty in the way of reforming overseers, is the limited number of them, and their want of education generally. I have

often been surprised that persons of better opportunities do not take to this occupation. Every overseer of any merit may calculate certainly, on obtaining in a few years, a situation in which he will realize five hundred dollars per annum, clear of all expense of himself and family, and be supported in the most comfortable manner. A horse found and fed, cows to milk, a garden, and servants to wait on him, with the privilege of everything grown on the plantation. But being usually persons who would otherwise have to labor with their own hands, and be wholly unable, without capital, to do more than earn a support for themselves and families, such wages, properly considered, are not only handsome, but very high. They are more than any mechanic, or any mere superintendent of any other kind of manual labor, can realize, clear of all expenses, in any part of the world. If the incomes of professional men could be ascertained, I have no doubt they are more than is *cleared* by eight in ten of the lawyers, doctors, or clergyman in any country; and all these persons incur great expense, and lose much time, in acquiring their professions, while overseers are well paid from the beginning.

I have often been surprised that these pecuniary advantages have not attracted the attention of persons of more pretension. I am sure a respectable overseer is a more respectable character, even though he has to obey orders, than the mere hangers on of the professions called learned. And if men of better education would become overseers, it would be of wonderful service to our agriculture. Unfortunately, *labor* is not considered as respectable in this country, as it should be, and soon will be: and somehow or other, many persons improperly regard overseeing as a degrading occupation. I do not see why. Probably the notion arises from the impression, that everything is done on a plantation by dint of lashing. Where this is the case, it is the fault of the overseer. Negroes who will not do their work, like boys who will not get their lessons, must sometimes be flogged; but a few stripes are all that is necessary, and these an overseer can always have inflicted by a driver. He need never touch a negro with a whip. My opinion is that of all punishments it is the least efficacious, and that fifteen or twenty lashes, lightly inflicted, are as much as should ever be given. For serious offences, other punishments, such as solitary confinement, &c., should be resorted to. I am happy to think this idea is rapidly gaining ground among planters; and could they entirely control their overseers, or obtain overseers of better education, a most important change in this particular would soon be accomplished.

The most disagreeable part of an overseer's duty, is his attendance on the sick; but in this, they seldom have anything as unpleasant to do, as physicians have habitually. To watch over the stores of their employers, and detect mal-practices on the plantation, is no more than every planter, and in fact every man in the world,

has to do for himself. To take care of the stock, is to most persons a pleasant occupation; and surely there is no vocation in the world more delightful than to ride over the fields, breathing the fresh air, and watching the growth of vegetation, improved by your own skill and industry under the blessings of that kind Providence which gives the sunshine and the showers.

In short, I know of no true reason why overseeing should not be regarded as one of the most respectable, as well as one of the most agreeable callings in the world; as I am sure it is one of the most profitable, to those who have little capital, and talents and education short of the highest standard.

If all men could be induced to think of it in this light, and a better educated class could be persuaded to embark in it, what incalculable advantages would result to planters, and to the cause of agriculture. Nor need any one be deterred from it by the fear that, in becoming the deputy of a planter, he will subject himself to wanton and capricious insult from him, more than from any other employer. It is almost always in the power of any man, whatever position he may occupy, to secure to himself the respect of those with whom it may bring him into intercourse. The just and golden rule for doing this, is never to presume beyond his allotted sphere of action. All the serious difficulties which occur between employer and employee, arise from the latter omitting to do his duty, or assuming something beyond his proper place. The overseer who assumes nothing, will find more omissions overlooked, than in perhaps any other subordinate station in the world. The planters, as a class, are the most polite, respectful, and kind-hearted of employers; and such a thing is almost unknown, as their intentionally wounding the feelings of those who have secured their confidence. If their own dispositions did not prompt them to avoid it, their interest would, for every planter knows the power his overseer has to injure him, and the advantage of keeping on the best possible terms with him. To bear and to forbear, is a leading maxim of a good planter, both in regard to his overseers and his slaves, and one which constant practice has made habitual with him. In short, I do not see any reason why, with a planter who is a gentleman, as most planters proverbially are, an overseer may not practise all the principles, and indulge in all the proper feelings and sentiments, of a gentleman. The rules which should govern the personal intercourse between a planter and his overseer, might well form the subject of an essay. And several might be written on the moral qualities, the previous habits, and the manners, as well as the peculiar qualifications, desirable in an overseer. But I have said enough on the subject. My hope is to bring it to the notice of writers on agricultural topics better able to discuss it, and to produce the reform which I deem so important.

In conclusion, let me sum up in a few words, the cardinal duties which the overseer owes his employer. They are to do for him

what he cannot do for himself and desires him to do; to carry out the details of his system, whatever it may be; and to execute what he plans, with his best judgment, with untemitted attention, scrupulous fidelity, and a cheerful spirit.

FRANKLIN.

SEA-WEED AS A MANURE.

"An Isle of Wight Farmer," wishes to know the best mode of using sea-weed for agricultural purposes—and to what crops it is best suited?

Having had many years experience, I can confidently offer the following remarks on the subject:—If sea-weed is obtained immediately after harvest, let it be spread on wheat or oat stubble, as if for top-dressing grass; let it remain in this state for a few days, in order that the alkaline properties may precipitate; and having so lain, let the ground be ploughed in ridges in the usual way; and I promise him a good crop of barley or oats—and I would add wheat also, but that I do not recommend this crop two years in succession.

If sea-weed cannot be obtained at the time of year I have alluded to, let it be drawn to a head land, and mixed with mould in parts of 1 to 6, viz. one load of sea-weed to six of mould—turning it at least twice in the course of the season, when it will prove a first-rate manure for all agricultural purposes.

I am, sir, your obedient servant,

JOHN GRANT,

A Farmer and Grazier.

Irishtown-Bray, Ireland.

Sir, in answer to an "Isle of Wight Farmer," concerning sea-weed, in your paper of the 20th inst., I beg to say that the best way of rotting the weed is, to mix it with the other manures in the yard. By experience I have found that putting it in a heap by itself, it decays away almost to nothing. If he has got plenty of straw to mix with it and the other manures, it is astonishing how soon it converts them into excellent manure.

The crops that I have found it to suit best when so mixed were turnips and barley. I have known it applied in this way, producing barley 21 lbs. more per bushel than farm-yard dung. I have known it producing good crops of oats ploughed into the land fresh from the sea; but this way of using it encourages the growth of weeds, but being fermented with other manures checks it.

[*Mark Lane Express.*]

TO TAKE FILM FROM A HORSE'S EYE.

Blow loaf sugar and a little salt into the inflamed eye, and in most cases it will be relieved. Sassafras buds pounded, and put in water, to stand till it becomes nearly as thick as cream, applied to the eye is an excellent remedy for inflammation.

For the Southern Agriculturist.

OBSERVATIONS ADDRESSED TO PLANTERS IN S. C.

Mr. Editor,—It seems to be conceded that the production of cotton has fairly overtaken the consumption of it, and there is every prospect that we will continue to increase production faster than consumption will advance, even at present prices.

There is a partial if not complete remedy for this evil, which I take the liberty of suggesting through your pages. Let every cotton planter make it a rule and adhere strictly to it, to make no more cotton than he can make clear of his plantation expenses. That is, let him pay all his plantation expenses by other crops, and make only so much cotton as will support his family, pay his debts, and add to his property. Many planters I dare say will answer, that they would be glad to make enough cotton to pay their debts and support their families. This may be true as to some, but in general it would be more pert than true. Even these who are hardest run, purchase corn, salt, negro cloths, &c., with *cotton* money. I doubt if there is any planter who could not produce enough for market, besides cotton, to pay for all these things, and all plantation expenses. Some are so situated, that they could sell corn alone sufficient for the purpose. Let them increase their corn crop then to that amount and diminish cotton. Others again if the corn could not be sold, might feed it to stock and sell that. It will bear transportation, and there is a great deal of foreign beef and bacon sold in the cotton region. Wheat and flour in the middle and upper country, could be made to pay these contingencies. Rice will grow at the foot of the mountains and command a good price, and so will tobacco. Many could pay these expenses by cutting timber and making shingles, staves, &c. In short, there are few planters in the whole cotton region, who might not by a little diversion of labor, manage to make what cotton they do, clear of the expense of production, and do so profitably. Let each planter look around him, and see what his resources are. I do not invite him to make his own shoes, hats, blankets, clothes, salt and iron. In most cases, others who are in these lines, can make these things and bring them to his door cheaper than he can make them

himself. But he can follow the business he understands, or at least is best prepared to carry on, and make something else besides cotton to pay for them.

I know the folly of recommending any measure to planters, requiring their combined action. I recommend this to each planter for his own *individual advantage*, as well as for the sake of the whole. While it will diminish the aggregate crop, if it curtails but a bale, it will teach each man to be independent, to a certain extent, of cotton speculators, open his eyes to his own resources, and gradually prepare the way for that change of culture, which is inevitable, and at hand, for all those who cannot make a heavy bale to the acre. And I would add, that every planter should as speedily as possible, reduce his culture to such land only as will make a heavy bale per acre. If he has no such, let him *make* it—manure will soon do it. Cut down the cotton, increase the corn and pea crop, pen hogs, cattle and every thing else on straw, muck, weeds, &c. &c. and he will soon have as much land that will raise him a bale to the acre as he wants, if he makes no more cotton than he makes *clear*.

I preach no more than I practice. I am a middle aged planter, and I have nearly always made my cotton crop clear. I have suffered my share in the hard times, and have met, I think, more than my average of losses; yet I have kept above board without any stringent economy, mainly, because I have paid plantation expenses by selling corn, peas, oats, &c. My expenses have been as heavy as any planter's of the same force, and my land probably as poor; yet I have kept up chiefly I think, because I did not have to pay them in a lump at the end of the year out of my cotton, which would have left me so small a surplus, that probably I should not have thought it worth taking care of. The balance would have been mere odds and ends which few know how to make tell. I have made corn, &c., supply my odds and ends of cash, and appropriated them as they came to hand to pay current expenses; and when my cotton came in, I could do something with my little *lump* of *clear money*. Let me say also, that after next year I shall not plant an acre, but will, or at least *ought* to yield me 400 lbs. clean cotton, not *one* and not many I trust next year. Yet my land in its

best natural condition, will not average half that much. What I adopt for my own good, and experience has proved to me is for the good of every planter; both individually and collectively, I recommend others to *try*.

COMPOST.

SUGAR BEET

[We received a request to insert in our last Number, a communication which appeared in the "*Temperance Advocate*" of the 18th July, containing a few questions relative to the cultivation of the SUGAR BEET, which we insert below, and follow it with an account of the cultivation of the article, copied from the "*American Agriculturist*;" with notes by the Editor of the "*American Farmer*," which will be as full a reply to the queries of "J. B. W." as we can obtain—without any planter in the South who has made trial of the plant, will furnish us with his practical observations as to its suitableness, to this or the adjoining States.]

Mr. Editor,—The season is just approaching, if it has not already arrived, for planting the Sugar Beet,—(*Beta Cicla*.) Will you, my dear sir, or some of your correspondents, who are familiar with the subject, have the goodness to communicate for the benefit of the public, and especially the writer, through the agricultural department of your truly valuable paper, the best mode of raising the sugar beet?

Information is desired as to the kind and quality of the soil best adapted to the cultivation of this article—the kind and quantity of manure necessary to a given portion of ground—the preparation of the land—the mode of planting the seed, and subsequent cultivation of the plant.

Will our native American seed answer the purpose, and especially that of southern production—or, is it necessary that the seed should be annually imported from France? What may be considered a fair average product of this valuable esculent, per acre? Is it not a first rate article for cattle, and particularly working oxen—and may it not be considered *superior* to ruta-baga turneps and every other kind of vegetable, as food for *milch cows*? And may it not be profitably cultivated for these purposes by every planter in South-Carolina?

How does the Mangel Wortzel, (*Beta Major*, or as some will have it, *Beta Allissima*,) compare in this respect? What is the relative product of this article per acre, under similar circumstances of soil and labor? And what is the relative value to the agriculturist?

As the over-production of cotton in this country is almost sure to ruin the business ere long, would it not be well for planters to begin to turn their attention to the production of something else? And might not the sugar beet be profitably cultivated in every

part of this State—and not only in this State, but in every part of the cotton growing country, for the purpose of making sugar? And if not as profitable as the cultivation of the sugar-cane in more southern latitudes, where that article flourishes best, might it not be more profitably cultivated than cotton, in South-Carolina, and in latitudes and upon soils where the sugar-cane does not ratoon, and where it would not be successfully cultivated at all? Your opinion on this branch of the subject, is also solicited, and the opinion and experience of some of your agricultural correspondents, is likewise respectfully requested.

Yours, &c., J. B. W.

Charleston, S. C. July 8th, 1844.

CULTIVATION OF THE SUGAR BEET.

From the American Agriculturist.

We have no idea that it will ever be worth while to cultivate the beet in America, for the purpose of making sugar; but as a table esculent, and especially as food for stock, we have found it on certain soils, the most profitable root that can be grown. Although it has been extensively cultivated for the last half century on the continent of Europe, its value in husbandry has been singularly overlooked in England and America, and it is not till within the few years, that it has become one of the general course of root crops. The cultivation of the sugar-beet is now rapidly on the increase, since public attention has been more particularly called to its merits, by a series of experiments made by Earl Spencer and other distinguished agriculturists, on its comparative value with mangold wurtzel, and turnips, in feeding stock;* the beet, so far as our information extends, having invariably proved much superior to the two latter roots in nutritive qualities. In addition to its greater value as an article of food over turnips, its yield is equally large, if not larger, acre for acre; and on account of the destructive ravages of the fly, it is a much more certain crop. Mangold wurtzel is an inferior variety of the beet, and a *coarse, tasteless* root, and wherever it can be cultivated, the sugar-beet succeeds quite as well; the latter, therefore, should invariably take precedence over the former, and leave it to become extinct, since it is so inferior in quality to the *improved* beet varieties.

Latitude of Cultivation.—Beets may be grown from the equator as far up as the 45th degree of north latitude, but from 39 to 44 degrees is their best range in America. Farther north than this it does not ripen well, and to the south, it is subject to be injured by the blister-fly and grasshopper; the summers also are too long and hot for it as a winter crop, and corn and potatoes answer a better purpose; still, if planted as early as garden vegetables in the southern latitudes, it may be brought forward for green food for

* It exhausts the soil much less than turnips.—*Editor of Amer. Farmer.*

stock, about the time that grass gets parched up and fails, and thus answer a very good purpose. We think beets might succeed well among corn, planted sufficiently wide apart to admit a row of roots in the centre. In this case, the corn would protect the beets from the too scorching rays of the sun at the south, and we should think, add to their juiciness by the shade of the stalks.

Soil.—The best soil for the production of the beet, is a deep light, and moderately rich loam, resting on a clay subsoil; yet, as it has the power of drawing much of the food necessary to its growth from the atmosphere, by means of its large leaves, it will do very well in thin sands, a leachy gravel, or hard clay; a good manuring, however, on such soils would be essential as a preparation for the crop, and frequent stirring of the earth during its growth. A very rich soil, such as the deep alluvials of our river-bottoms, is not a proper one for beets, inasmuch as the roots grow too large and rank in it, and are consequently coarser and less nutritious, and do not abound with as much saccharine matter, as is found in those growing on poorer soils.

Preparation.—Plough deep, and roll and harrow the land fine, and throw it up into beds about one rod wide, and if the subsoil be at all tenacious, have the furrows between the beds well hoed out, so as to drain off all falling waters.

Kind of Beet.—The white Silesian is the best variety which we have cultivated, it being the sweetest and finest grained of all others, and to these good qualities, it joins that of producing an equally large crop.

Preparation of Seed.—It is essentially necessary that the seed be soaked at least three days previous to planting, and if it be a whole week, it is no matter. This should be done in soft tepid water;* and just before planting, roll the seed in ashes or plaster of paris, so as to prevent their sticking together, and facilitate the sowing. The beet seed has a thick, hard pericarp or shell, and till this softens and breaks, it is impossible for it to vegetate; and unless one can be sure of wet weather immediately after sowing, it will frequently not come up at all, or be so long about it, as to be the means of losing half the crop.

Planting.—The beet may be sown broadcast like the turnip, but as weeds are likely to spring up in most soils and prevent its growth, and the labor of exterminating them is much greater in this way, it is preferable to sow in drills. For this purpose, the drill-barrow may be used the same as in planting the ruta бага, but the beet-seed is much more difficult to deliver evenly through a small aperture than the turnips, and though we have used a great variety of barrows for this purpose, we have never yet had one

* We have found a small addition of saltpetre, and dung-tea greatly to increase the vegetation of the seed, and early growth of the plants.—*Editor of Amer. Farmer.*

that worked well and could be depended upon, especially in tenacious or heavy loamy soils.* It is preferable, therefore, to take a piece of joist four inches square, or a round stick of the same diameter, half or just as long as the lands are wide, fill this with iron or wooden teeth in wedge shape, as far apart as you wish to have the rows, put a pair of fills to this, and hitch on a stout man or steady horse, and passing once or twice over the land, completely drills it from one to two inches deep. Then follow immediately with the seed, dropping it by hand, or from a long necked bottle, or tin cup with a hole in the bottom, and a handle attached to it, shaking the cup or bottle as you walk along, and following sharp with the eye to see that the seeds are evenly dropped. Faithful children of ten years old, can do this with more ease and facility than grown persons. As fast as dropped, cover with the hoe; in heavy soils about half to three fourths of an inch deep, in sand or light gravel twice this depth.

The rows may be from two to three feet apart for a field crop—two and a half to three feet is the best. This distance enables one to use the cultivator for weeding, without danger of cutting or covering the plants by the dirt being thrown up as it passes through the rows. The product is not so great per acre from wide rows, but land being cheap and labor dear in America, we must study to facilitate manual operations, at the same time that we have some calculation to a good yield. Four pounds of seed per acre is generally considered enough, but it is better to have a dozen extra plants to thin out, than to be obliged to transplant one. Those transplanted do not thrive half as well as those that remain where they vegetate; besides, the labor of so doing is more expensive than extra seed and time of thinning. We therefore mean in sowing, to have a good seed dropped as near as every two or three inches in the drills.

After Culture.—As soon as the weeds begin to appear, run the cultivator through the row and follow with the hoe. It is very essential that the ground be kept clear of weeds, especially for the first two months, and three hoeings with the use of the cultivator are generally sufficient for the season. As the plants attain a height of about three inches, they should be thinned to a distance of about four inches, leaving the strongest and healthiest; then during the season as they grow, gradually thin out the remainder, leaving the roots in the rows at least about nine or ten inches apart. If left too thick, they shade and choke each other in growth, and the product is not so great as when well thinned.

† We owned a few years since, a small seed-barrow, made under the direction of Mr. Thomas Bevan, the late manager of Mr. Caton, at a cost of \$3, with which we were enabled to deposite beet or any seed with great facility and regularity; so much so, that with the aid of two men provided with a hoe and rake, to stretch the line, make the drills, and cover the seed, we have put in an acre in 4 hours by the watch, one for small seed, and the other made expressly for beets; the cutter was an additional expense of 75 cents.—*Editor of Amer. Farmer.*

These thinnings are valuable to feed the stock during the summer, and are frequently considered equal to half the expense of the cultivation of the whole crop.

Harvesting.—When the leaves begin to decay and turn yellow, is the best time to gather the beets, for if left longer than this in the ground, the roots grow hard and strong, and do not yield so great a per cent. of saccharine matter. This of course will take place earlier or later in different climates, and is undoubtedly as good a rule as can be given, it being adopted after a strict chemical analysis of the beet in its various stages of growth. If the soil be light, as the roots generally grow so much out of the ground they can be pulled up by taking hold of the tops with the hand—but if more tenacious, the dung-fork is the best instrument that we know of for digging them. Let part of the hands be at this operation, and the other part follow with large knives or bill-hooks; taking up the root with one hand, top off the leaves with the other, and toss the roots into small heaps to dry through the day, and if left out over night and there be danger of frost, let them be lightly covered over with leaves or straw; a hard frost injures the roots, and makes them more liable to decay. They may then be taken to a well-ventilated cellar, or be pitted in heaps of 100 to 200 bushels. The beet is rather apt to heat and commence sprouting if thrown into large heaps, or packed away in the cellar. If put in the latter place, any other roots except the turnip may be placed at the bottom and the beets on top, and if in pits the same roots or straw in the centre. All the beets then have a good ventilation, and an opportunity of throwing off the impure air; and to facilitate that, after covering the heaps with dirt, holes should be made every few feet on the top of them, and wisps of straw be placed in such holes. In this way we have experienced no loss or deterioration in the value of the root, but have preserved them till May, as fresh sound and sweet, as when first taken from the ground the preceding fall. In a climate as far as 39 degrees south, they might be preserved all winter in tolerable tight sheds and barns.

Feeding.—Throw them on the ground or floor, and take a hay knife or spade, and a man will slice up a bushel a minute sufficiently fine to prevent cattle choaking on them. The best way to cook them for stock is by steaming, but they cannot be kept so over two days in warm weather, and a week in cold, without undergoing a fermentation, and losing the saccharine matter so grateful to the taste and so essential to nutriment. Either raw or cooked, stock frequently prefer them to meal or corn.*

Raw, we think them as nutritious as any root whatever, and as far as our experience extends, three bushels of beets with neat stock, is equal to one of Indian meal. Hogs demand less bulk to

* It is customary in some parts of the North, to keep them in the earth, and dig them as they are wanted to feed away.

fill themselves than cattle, and perhaps their value to them would not be in as great a proportion.

Product.—Four hundred bushels is a fair yield in field culture, but six or eight hundred per acre is about as common. We have grown at the rate of 1,300 bushels to the acre on a hard clay soil, and our average field product is usually 600 bushels. We have heard of 3,000 bushels being produced to the acre on rich loams. The roots will frequently weigh from 17 to 20 pounds each, and 10 pounds is not unfrequent; now admitting this last weight to each root, and that seven rows stock in the width of a rod, which would make them about two feet apart, and the roots one foot apart in the rows, and allow 60 pounds to the bushel, we should have the enormous product of 3,080 bushels to the acre, but roots so large are coarse, stringy, and not unfrequently hollow, and have much less saccharine matter in proportion to their bulk, than smaller ones. Those of about five pounds weight are far superior; and these standing one foot apart in the rows, and five rows in the width of a rod, making them about three feet apart, give the large yield of 1,100 bushels per acre, which is quite as great a product as it is desirable to strive for, and upon the whole, perhaps the most profitable.

Raising the Seed.—There is as much in choosing proper roots for this purpose, as in selecting animals to breed from, and the same general rule holds good in both cases—a medium size and fine true form. Roots weighing four to six pounds, and of four to six inches diameter at the top, and nine to thirteen inches long, and smoothly and evenly tapering to a point, without straggling branches, and of a creamy white color, and smooth grain, are the most desirable. "Like produces like," and with such selections followed up, the crop will soon run evenly of the same shape and size as the roots from which was grown the seed. Plant out the seed-roots about the 1st of May, three feet apart; and as the stalks grow, set small stakes round them in a circle, and tie a cord from stake to stake for their support. When the seed shells easily, which if planted in May, will be in September, is the proper time to gather it. It ought to be spread out a few days on the floor of some high, dry room, or on boards in the sun till well dried; it may then be packed away in boxes or barrels, or be put up in bags. We have generally found this essential to a proper preservation of all seeds. If not well dried before packing, they are apt to heat and mould, and lose their germinating powers. Two or three dozen roots will grow seed enough for it at the seed-stores. When grown at home, one knows what he gets, and as it comes to him abundantly and cheap, he can, without grudging, give to his neighbors, and thereby greatly promote the culture of this most valuable of roots.

For the Southern Agriculturist.

ON RUST IN COTTON.

Mr. Editor,—In perusing the August number of your interesting Journal, I was attracted to the extracts from Mr. Ruffin's Agricultural Survey, and was quite pleased with it, and more particularly when I came to that part relative to rust in cotton, as I hoped to have received some instruction as to the cause and remedy of that destructive disease.

I do not pretend to say it is not caused from insects, as Mr. Ruffin supposes, but I must differ with him; first, because "he presumes the insect would not be present in any numbers, unless the preceding crop had been cotton;" and secondly, because the rust rarely if ever injures cotton on well manured land. My impression is, that it arises from a want of proper nutritive qualities in the soil, as it rarely ever shows any symptoms of rust until the first formed fruit is nearly grown, when, having exhausted the nourishment from the soil to give it that growth, there is not sufficient left to bring it to maturity; the bolls take all the nourishment, the leaves commence turning yellow and gradually drop off, until nothing is left but the main stalk, the largest branches and the few first formed bolls. I have come to this conclusion from several experiments made at one of my plantations.

The land was originally of heavy live-oak growth, and when new, made heavy crops of cotton; but for the last few years it has been subject to rust. I thought at first it was occasioned from heavy rains in July, but it occurs as well in dry as wet seasons. I had, in consequence, abandoned the culture of cotton for several years, and planted corn and peas, (that is, resting one half the land each year,) but in consequence of the rise in cotton last season, I was induced to try the staple again, on land that had not been in cotton for five or six years; part of this land was manured during the last season by moving my cow-pens, part with manure from the stables, and a small part by hog-pens.

The crop was planted on the 15th March, came up well, grew beautifully, commenced blossoming on the 5th June, was very well fruited and looked well until about the 1st of July, when I

observed a few spots of rust, and now most of the fields has taken it, and some plants perfectly dead; but where the pens and manure were put, there is no appearance of rust, and I have never seen finer or healthier cotton. If it was occasioned by insect, would not they attack the manured spots, as well as the poor ones?

If I am in error in regard to manure being a preventive to rust, I will be thankful for information on the subject.

Yours respectfully,

Darien, Geo. August, 3rd 1844.

SEA-ISLAND.

For the Southern Agriculturist.

HOW TO DESTROY THE WORM IN THE GREEN PEA.

Editor of the Southern Agriculturist:

Sir,—Tell your correspondent S. (who wishes to know how to destroy the worm in his seed peas:) to gather them when thoroughly dry, spread them out for a day or two in the sun, then cork them up in glass bottles, and set them, or hang them in the sun for several weeks; this is my practice, and I seldom see a hole in any of my peas. A.

EXPERIMENTS IN THE MANUFACTURE OF CORN-STALK SUGAR.

BY MARCUS ADAMS, ESQ., OGDEN, MONROE CO.

Our readers have been already informed, that a premium of \$100 was awarded by the State Agricultural Society of N. Y. to M. Adams, of this county, for experiments in the manufacture of sugar from corn stalks. This subject is of so much general interest, that we copy from the recent Vol. of Transactions, with slight abridgment, Mr. Adams' full report of his experiments, with the important suggestions and inferences deduced therefrom. [*Ed. New Genesee Farmer.*]

Raising the Corn.—One acre of ground was selected of a sandy loam, cultivated last year to ruta-baga; this was manured with thirty loads of the best stable manure, well mixed in with the soil by twice ploughing and harrowing. Corn planted the 13th of May, with eight-rowed northern corn; the rows three feet apart one way, and hills eighteen inches the other, with from six to eight kernels in a hill. Corn came up fine, and was plastered the

31st of May; hoed the first time the 9th and 10th of June, the second time 24th of June. Cultivator run through it three times. The corn began to tassel the 18th of July, and was in full tassel the first of August.

Up to this time the crop had looked uncommonly well, but from the 1st of August a severe draught commenced, and continued until the crop was very materially injured. Some spots where the corn had grown most luxuriantly, withered and dried up; other parts of the field suffered less, so that on the whole there was some more than half of a good crop, or what there would have been if the season had continued favorable.

Cutting, Grinding and Boiling.—Cut the first stalks, and made the first experiment at grinding and boiling, the 25th of August. The stalks at this time were quite green, but the produce was quite satisfactory, and appeared quite favorable for crystallizing. The juice was very abundant, of a greenish color, very rich, thick and heavy, yet retaining all the flavor of the corn-stalk, until after cleansing and boiling.

August 30th, made the second batch. This was boiled in a shallow sheet-iron pan, clarified and strained according to the directions given in Mr. Ellsworth's report. From this batch was taken the specimen of sugar exhibited to the committee at the State Fair in Rochester.

Other experiments were made the 4th and 7th of September.

The object of these successive experiments was mainly to determine at what time the saccharine matter was sufficiently matured to make crystallized sugar.

On the 11th of September the stalks appeared in the right stage, and the cutting, grinding and boiling were commenced, and continued with little intermission until the whole was completed.—The method pursued in this operation, was to keep a sufficient number of hands in the field to strip the leaves or blades, and cut off the tops as fast as the stalks were wanted for use; this labor was generally performed by boys. The corn-field being at a little distance from the mill, the horse used for grinding was put before a light wagon, driven to the field, the stalks were then cut and placed upon the wagon, (taking care to keep them straight and in order,) driven to the mill and ground without delay. A load of this kind in a light wagon, with lumber box, will make a batch of from fifteen to twenty gallons; this would be ground in about thirty minutes. Lime water was mixed with the juice while it was running from the mill. The juice is then strained through a flannel cloth into a pan, and heated, rather moderately, to the boiling point, when the scum is removed with a skimmer, then boiled rapidly for a few minutes. The sirup is then removed from the fire, and again passed through the flannel strainer, when the boiling is finished as rapidly as possible.

This process from the cutting of the stalks to taking the sugar from the fire, could not possibly be performed in less than two hours; and if the batch was larger, would often exceed three. Five batches were made in one day, from which one hundred pounds of sugar were produced.

The Boiler.—The boiler or pan, I made of a sheet of Russian iron, turned up at the sides and ends, lapped and riveted at the corners; would hold about twenty-five gallons, five and a half inches deep, but from fifteen to twenty gallons is as much as would boil to advantage. This pan is placed upon an arch of brick, so that the fire comes in contact with only the bottom.

Mill.—To construct this was a matter of much more difficulty. Some drawings and descriptions are given by Mr. Ellsworth, but little more could be known from them than that there must be three rollers, so placed and put in motion, that the stalks in passing between them should receive two crushings.

To plan and construct a mill, with the proper dimensions and with the strength required, so that the work of crushing the stalks should be performed with certainty and despatch, was no easy task. I flatter myself that I have in this been tolerably successful. The rollers and iron work, patterns, &c., for my mill, were made by A. J. Langworthy, of Rochester, at a cost of sixty-five dollars. The whole weight of iron is about nine hundred pounds.

About one-half of the expense of the mill is in the horse power. The iron rollers being placed horizontal, it was necessary to have a horse-power wheel and gearing in order to give them motion. If the more simple, and it would seem at first view, less expensive forms, given in Mr. Ellsworth's report, had been adopted, placing the rollers perpendicular, the horse passing around them, the rollers must have been of large diameter, in order to take through the length of a corn-stalk at one revolution of the horse. These large rollers, when made of iron, would have been very expensive, and probably not work as fast as the small ones I use, giving them a quicker motion by gearing. In my mill the circumference of the rollers has such a proportion to their motion, that their velocity is equal to about one-sixth the velocity of the horse; or, in other words, a corn-stalk six feet long, will pass through between the rollers in the same time that the horse will walk thirty-six feet. The grinding is a beautiful operation, the amount of juice contained in the stalk is surprising to every one. The stalks in passing through the mill are crushed very fine, and the juice entirely separated from them by the pressure of the rollers.

Clarifying.—This has been to me a difficult, and to some extent an unsuccessful operation. All the various methods recommended by different persons who have made some experiments on corn-stock sugar, and all that my own experience in clarifying maple sugar could suggest, failed of producing fully the desired effect.

In all the failures which have been experienced to produce crystallized sugar, the cause should be sought here. Unless the juice of cornstalks can be clarified, it is vain to expect a pure article of crystallized sugar. All the obstacles to the complete success of this enterprise are met at this point; but that they will be completely overcome, there cannot be the least doubt. Lime water applied to the juice as soon as it comes from the mill, one gill to fifteen gallons, was thought to produce the best effect. But experiments were made with various other things, such as milk, eggs, charcoal, &c., these were used separately and combined, but nothing appeared to raise the scum as well and render the juice as clear and well-flavored as the lime water. One experiment was made by filtering the juice through sand and charcoal; this rendered it very transparent and improved the taste, but there are very many objections to this process—the length of time required for the operation is a sufficient one.

Straining.—This operation is performed both before and after clarifying. The strainer used was a square yard of good new flannel, of fine texture; so great is the amount of mucilage, or very minute particles of the corn-stalk contained in the juice, that the strainer has to be rinsed in water once or twice in straining a batch. The second time straining is rendered more difficult by the juice being hot, as the hands have to be used in forcing it through the cloth. As knowledge and experience is gained on the subject of clarifying, the straining will be dispensed with, except to pass the juice through a coarse strainer to remove some of the larger impurities. Some method will be discovered by which all this foreign matter will be removed in the operation of skimming.

Boiling.—This operation requires care and close attention, particularly when about ready to skim, and when the juice is concentrated to about the point desired. The more rapidly this operation is performed, the more perfect will be the crystallization. But, however necessary it may be, it is scarcely possible, with any apparatus that I have any knowledge of, to perform the whole labor of cutting, grinding, straining, skimming, and boiling, in the short space of one hour, as recommended by Professor Mapes of New-York. If this is ever done, it must be in very small quantities, or some very improved method must be adopted.

In boiling, as soon as the scum begins to rise, the fire must be regulated with care, that time may be had for removing the scum before it shall be boiled in. If the operation of boiling and skimming be well performed, about one gallon of thick heavy scum will be obtained from a batch of fifteen gallons. The sirup, when it becomes thick and nearly done, has a very beautiful appearance, in every respect equalling the best of maple sirup. To boil to the crystallizing point, (which is a very uncertain one,) requires considerable care and discrimination. The same tests that are

used for maple sirup are equally applicable to corn-stalk; as for instance, when it will flake off, breaking short, from a dipper or stick—or string out between the thumb and finger, from half an inch to an inch in length, is perhaps the safest test. Very great care is necessary here, that it be brought to the right point and no more; and also in managing the fire, as a little blaze, or too strong a heat, is most sure to scorch, and this is fatal to crystallization.

Crystallization.—Difficulty has been found here by all that have made experiments with corn-stalk sugar; but perhaps every one has obtained a sufficient quantity that was well grained to satisfy them, that the difficulty was somewhere in the process of manufacture.

From recent observation, I am inclined to think that I have kept my sugar in too cool a place. Two small parcels, left partly by accident where they received the warmth of a fire, were found well grained. But there is another difficulty after it is well crystallized, to make the molasses separate, or drain, as it is called: although the crystal appears to be as fine as was ever formed, still the molasses will not separate by any common methods used for maple sugar. As yet, I have not been able to procure any better specimen than that exhibited at the State Fair.

Amount from the Acre.—Although the quantity of stalks was so much diminished by the drought, yet six hundred pounds were obtained; this, it should be understood, is weighed when taken from the fire and before graining has commenced. If it were all well grained and the molasses separated, the weight of sugar would probably not be more than five hundred, and molasses one hundred.

In order more fully to determine the amount that might be produced from an acre of good corn, I measured two square rods of the best corn I had: the stalks were then cut, and their weight was 195 pounds; after grinding, the juice weighed sixty-nine pounds and measured nine gallons; from this I obtained twelve and a half pounds of sugar. By this it would appear, that had the whole acre been as good as the two rods submitted to the test, one thousand pounds would have been the produce. And it would seem that this must be a safe calculation, as the stalks on the two rods were not as large as would be grown in a good season.

An equal amount by weight of large stalks of rank growth, and small ones that were grown thick, were ground separately; but as no material difference was found in the produce, my opinion is that the corn should be cultivated so thick that no ears will be produced.

[Here follows a list of items, which we omit, showing the expense of raising one acre of corn-stalks, including rent of land, to be \$19 52.]

There is no part of the business that is so tedious as plucking the ears, stripping the leaves, and cutting off the tassel. A part

of this labor was performed for the fodder that might be obtained from it, but it was not sufficient to pay; as the labor of plucking the ears was performed for this consideration, I am unable to say what it would cost; but this much is certain, it is needless for the most part, as no ears of any amount need be raised, if the corn is sufficiently thick. From the best estimate that I can make of the expense of stripping leaves and cutting the tassel, I think that a smart hand would perform the work on an acre in six days, or for \$4.50; making the whole expense up to the cutting of the stalk \$24.02.

It is somewhat difficult to come at the expense I was at in manufacturing the acre of stalks into sugar, so much was done by way of experiment. But as one hundred pounds were made one day, I shall take that as my guide, and call it a day's work for two hands to make one hundred weight.

The amount above brought down,	- - -	\$24 02
To twelve day's work making sugar, at 6s. per diem,		9 00
To use of horse and wagon 6 days at 3s. per diem,		2 25
To $\frac{3}{4}$ cord of wood at 12s. per cord,	- - -	1 12

The whole expense of cultivating the crop, and }		\$36 40
manufacturing the 600 pounds of sugar	}	

Or a fraction more than six cents per pound.

Some credit might be given for fodder, as a large amount of leaves or blades might be saved with a little extra labor while stripping them. The stalks, after being ground, are worth something, horses and cattle eat them very greedily when they are fresh from the mill.

REMARKS AND SUGGESTIONS BY WAY OF RECAPITULATION.

1. If good crystallized sugar of pleasant flavor shall be produced from the corn-stalk, I see no good reason why its manufacture shall not become as universal as the raising of corn. Every neighborhood can as easily be supplied with its apparatus to make sugar as to make cider.

2. Corn should be grown so thick as to produce no ears. Some variety of corn that grows very large, like the "Ohio" or "Rocky Mountain" might be best; this latter is well adapted in some respects, as it is very little inclined to ears or leaves; cutting the tassel will not prevent earing, unless they are all cut and kept cut. The cutting of the stalk may commence as soon as the tassel is ripe. If the weather is warm, grind immediately, but if cool, or early in the morning, a little delay is not thought to be injurious.

3. Lime water is perhaps the best for clarifying of anything yet discovered; but some agent that will more effectually cleanse from all deleterious or foreign matter, is necessary. Science, with persevering experiment, will no doubt produce this result.

4. The less time occupied in boiling, the more perfect is crystallization. This is true of the maple juice, and probably more so of the corn-stalk. To boil to advantage, two pans should be provided.

5. Any man of ordinary ingenuity, can make a pan in two hours, with no tools but cold chisel, punch, hammer and six cents worth of rivets.

6. I make no doubt that a mill with wooden rollers would answer a good purpose for a small operation, and small operations are what are wanted; let no man go into this business *largely* until there is more knowledge on the subject. A simple mill with two rollers, that might be built for five dollars, would crush the stalk and save most of the juice. No cog-wheels can be necessary; for if you turn one, the other must go. When experience has taught how to clarify, so that we may be sure of a good article, then will be time for more perfect and expensive machinery.

7. If the result of this enterprise depended on the amount of saccharine matter contained in the corn-stalk, its success would be certain. Estimates that have been made of the amount that might be made from an acre, have probably never been too high. Improvements in cultivation, and in finding the variety of corn best adapted, will no doubt greatly exceed these estimates.

8. The expense, as compared with maple, must be much in favor of corn-stalk. Of the expense of growing an acre of corn-stalks, every farmer may judge correctly; then compare the amount of fuel, the amount produced in a day, the expense of fixtures, and it is all vastly in favor of the corn-stalk. Only let the corn-stalk sugar have the delicious flavor and the beautiful crystallization of the improved maple, and no longer will that pride of the forest be hacked and bored "with wicked hands," to obtain its sap.

May we not hope that Mr. Ellsworth's forth coming report will throw much light on the subject? The collected experience of all that have been engaged in the business the past season, will soon be laid before Congress and the people. If Professor J. I. Mapes, shall fulfill his pledge made in the last report, some scientific and practical information will no doubt be the result.

With these remarks, I submit this report. I have endeavored to give a faithful and full account of my experiment. I am aware, that on some parts of this business, I cannot speak as favorably as might be desired; but for myself, I have no fear of the result of the enterprise. I would beg leave to suggest, that a liberal premium be offered next year, for a given amount of corn-stalk sugar of the best quality. This might stimulate, not only a greater amount, but more careful experiment.

From the Report of Mr. Ellsworth, the Commissioner of Patents.

This subject has excited much interest, during the past year in various parts of the country, and numerous experiments have

been tried; and although the point of easy granulation does not seem to have been reached, yet the result of the different trials tends to show, that the great facts respecting it, before announced, are confirmed. Good molasses and sirup have been obtained; and a variety of accounts will be found in the appendix. We shall briefly allude to some of these. Mr. Beal, of New Harmony, after giving an account of his crop and mill, and mode of manufacture, says, "From information which I have obtained from those acquainted with the boiling of cane juice, the sirup begins to grain immediately after being taken from the kettles. I endeavored to heat mine in the same way, as near as circumstances would permit; but the graining did not commence in less than from 12 to 48 hours. Perhaps something depends on the quantity." He says, also, "20 moderately well grown stalks yielded a gallon of juice; one gallon of juice will probably yield from a tenth to an eighth of sirup; one pint of sirup weighs one pound and a half, and will yield, by measure, perhaps one-fourth molasses and three-fourths sugar."

Mr. Plummer, also of Indiana, though he failed in his efforts to make sugar, on account of not being able to bring it to granulation, yet made an excellent quality of molasses—as he says, "as pure and beautiful a straw-color as any tree [maple] molasses we ever made. The juice," he adds, "was abundant, and rich, it being boiled down to molasses in a short time."

Mr. Frenis, of Pattonsburg, in Virginia, writes that he made "some excellent sirup," and "very good molasses." Mr. William H. Deaderick, of Tennessee, made several trials, but met with the same difficulty in granulating it as others; but a good sirup was procured, "somewhat darker than honey, but perfectly transparent, and free from impurity, pronounced superior, without exception, by numerous persons who partook of it, to either imported molasses or honey. It presented no other taste than that of a rich and luscious sweet, wholly free from any strong or unpleasant flavor, such as appertains to the articles just named. The sugar obtained did not, either in appearance or taste, differ from New Orleans sugar more than different lots of this article do from each other." He says, "100 large corn-stalks will afford 10 or 11 gallons of juice, which, when, boiled down to the point of crystallization, will yield one gallon of sirup."

Mr. H. J. Chalmers, of Monroe county, in Georgia, is also said, in a public journal, to have made excellent sirup. The editor says, "We have tested its quality, and can pronounce its saccharine flavor to be milder and richer than any of the Louisiana sirup we ever tasted. It has nothing of the acidity often detected in other sirups, and particularly in molasses; but leaves upon the palate a pleasant and agreeable sensation, that insensibly makes you smack your lips." Mr. C. affirmed, that he could easily have

produced sugar, but he had no shallow kettles for the purpose. He intends to try it next season, and patriotically exclaims, "I trust the day is not far distant when the planters of Georgia will become independent of the West Indies and Louisiana for their sugar and sirup." Mr. H. J. Thompson, also, is said to have had similar success; and the article produced is pronounced "equal, if not superior, to the best sugar-house molasses. It is equally as transparent, and in flavor resembles very much the Florida sirup, which is esteemed superior to any other for table use." Mr. Thompson says, that the test which he has given the master, in the manufacture of the 25 or 30 gallons, has not only satisfied him that the best molasses can be made from corn-stalks, but that he can obtain a better return for his labor from its cultivation than from any other crop. * * * * *

It is hoped, and confidently believed, that the difficulty respecting the granulation will before long be removed, and a fair experiment will then show, that the importance of this subject has not been over-rated. That this expectation is not unreasonable, may be seen from the fact that 18,000 weight of sugar per day is now made directly from common molasses, of the common kind. It is said that, in making corn stalk sugar, long stirring destroys granulation, and renders it gummy; and that it should be boiled quick, so as not to be long on the fire. Experience will soon remedy many defects, which always belong to an incipient stage of an enterprise.

Mr. Webb, and some others, think it preferable to plant corn so thick that the stalk will not grow so large, nor produce many ears. Should this prove correct, it is not improbable that corn sown broad cast, at the rate of two or three bushels per acre, will dispense with all after culture—especially if sown on land not overrun with weeds. Indeed, the very growth of corn sown broad-cast, if previously soaked in saltpetre water to give it a rapid start, will overtop the weeds, and choke them. It may also be further remarked, that there may be one-third difference in the saccharine matter of the different kinds of corn-stalk. Experiments are to be made on this subject; but, as a general fact, it may be said that *that* stalk which produces the most ears will contain the most sugar. Some corn possesses much oil, others none at all.

M. Biot, in a report before the French Academy of Sciences, says, "Sugar of maize is precisely that of sugar-cane mixed with a small quantity of sugar of fecula." He thinks the removal of the ear from the stalk injurious, as, by comparison that which had been thus prepared gave only 12 per cent.; while that which had not been so, gave 13 per cent. He thinks, also, that the fecula is probably owing to the manipulation, and not properly existing in the plant.

[*New Genesee Farmer.*]

PROCEEDINGS OF THE
AGRICULTURAL SOCIETY OF SOUTH-CAROLINA.

At the anniversary meeting of this Society, held in Charleston, on Tuesday the 20th of August, 1844, the following officers were re-elected, viz.—

JOHN H. TUCKER, *President.*

R. W. ROPER, *Vice-President.*

EDWARD BARNWELL, Jr. *Treasurer.*

FRANCIS D. QUASH, *Corresponding Secretary.*

JOSEPH F. O'HEAR, *Recording Secretary.*

The following Resolutions were offered by Mr. Roper, and unanimously adopted:—

1. *Resolved*, That the great advantages resulting to the State, from the Agricultural and Geological Survey, establish it as a wise and salutary measure, and one which ought to be pursued.

2. *Resolved*, That a petition be transmitted from this Society to the Legislature, praying a renewed appropriation for a completion of the Survey of the State.

3. *Resolved*, That as the term and appropriation for the Agricultural and Geological Survey of the State, expires with the present year, and the survey is still incomplete, that a circular be sent from this Society, to all our other Agricultural Societies, inviting them to take action with this Society, in petitioning the Legislature to renew the appropriation hitherto voted, for a continuance of the Agricultural and Geological Survey of the State.

Report of the Standing Committee.

The Standing Committee of this Society, on the expenses incurred on Produce of the State, would beg leave to submit statements relative to the sums expended on domestic imports:

They do not wish to touch on any speculative doctrine of political economy, involving the necessity of mutual exchanges for reciprocal advantage, but propose to shew in what articles our money is expended, and whether any balance remains. The Committee leave it to the good sense of the Society, and the community in general to determine, how far many of these expenditures are inevitable, or whether they may be moderated for the good of the State. In the extended trade between the North and the South, it is very

difficult to ascertain the accurate amount of what we buy, and the statement now submitted does not pretend to effect more than approximate to the truth. It may, however, give some clue to the labyrinth of domestic trade, and invite those well informed on particular items, to add such correction as may finally lead to something like a correct statistic. The object of the Committee is simply to exhibit a debtor and credit statement of our receipts and expenditures, as a suggestion of the propriety of producing for ourselves, much of what we now purchase, so as to retain at home so much of the proceeds of our labor as will enlarge the resources and comfort of every family in the State.

To strike a balance the value of Exports must be stated.

Export of 60,590,890 lbs. Cotton, -	-	-	\$6,000,000
" 80,000,000 lbs. Rice, -	-	-	2,000,000
" Lumber and other Commodities, -	-	-	500,000
			<hr/>
			\$8,500,000

IMPORTS OF 1843.

Sugar,	5,917 hhds.	5½ cts.	\$383,922
Coffee,	38,594 bags,	8½ or \$13	501,722
Molasses,	4,359 hhds.	24 cts.	135,000
Flour,	52,000 bbls.	\$5	260,000
Corn,	300,000 bush.	50 cts.	150,000
Oats,	100,000 "	30 "	30,000
Peas,	40,000 "	62 "	24,800
Hay,	24,826 bundles,	87 "	74,478
Bacon,	5,000 hhds.	6 "	300,000
Lard,	20,000 kegs.	6½ or \$3	60,000
Butter,		\$12 each	225,000
Salt,	91,122 sacks,	1 30	118,458
Cheese, -	-	-	30,000
Ploughs and Garden Implements,			20,000
Northern Hardware, -	-	-	250,000
Machinery, -	-	-	200,000
Horses, Mules, Cattle, Hogs, -			1,775,000
Building Materials, Lime, Granite,			
Carpentry, &c. -	-	-	150,000
Equipages, -	-	-	150,000
Furniture, -	-	-	50,000
			<hr/>
			\$4,888,350

Export average,	-	-	-	\$8,500,000
Imports brought forward,	-		\$4,888,380	
Shoes, 187 whites at \$5, 163,000 neg.			1,081,700	
Hats to $\frac{1}{4}$ of 256,000 whites at \$4,			340,000	
Dry Goods,	-	-	2,000,000	
Foreign Imports,	-	-	1,588,852	
			<hr/>	\$9,898,932

Travelling expenses must be computed as one of the regular drains to the State, 2000 persons at \$300, 600,000

The discount against this sum, \$10,498,932
for re-exportation, may be thus estimated.

Sugar,	383,922	}	1,020,644 deduct $\frac{1}{4}$, \$255,161	
Coffee,	501,722			
Molasses,	135,000			
Hardware,	-	250,000 deduct $\frac{1}{4}$,	62,500	
Lard,	-	60,000 "	$\frac{1}{4}$, 15,000	
Foreign Imports,	1,558,852	"	$\frac{1}{4}$, 526,284	
Dry Goods,	-	2,000,000 "	$\frac{1}{4}$, 1,000,000	

Deduct from \$10,498,932 this amount, 1,858,945 \$8,639,987

This Exhibit of Imports has been compiled from the account current files of the *Mercury* and *Courier* for 1843, corrected as far as practicable by Merchants most likely to possess accurate information. The importation of Corn last year, was comparatively small, owing to the failure of the North-Carolina crop; but in years past has considerably exceeded the amount specified, though at present on the decrease. The greater portion of our Sugar, Coffee and Molasses, particularly the first two, is received coastwise, notwithstanding freight and distance. Much of this import is distributed throughout the State. The aggregate of all these items, shows a considerable balance against the State, moderated by the probable discounts for re-exports, to Georgia, North-Carolina, Tennessee, and Alabama.

Although the cost of the Sugar, Coffee and Molasses, is merged in the Foreign imports, yet so large a portion comes coastwise, and does not appear on our Custom-House books, that a deduction must be calculated as well from those items, as from the Foreign

imports. From the Foreign imports, a third may be deducted for re-exportation, and from the Dry Goods at least one half. The amount of Dry Goods from the North is probably more than two millions, but it is impracticable to arrive at an estimate. The importation of Dry Goods to Columbia, Georgetown, and Hamburgh, enter considerably into our calculations. Independent of our catalogue of expenses, a considerable amount is spent for Beef, Pork, Fish, Baskets, Pails, Mats, and a thousand other articles. The fact that we have no surplus, is confirmed by the stationary amount of coin in the country. If our exports exceeded our imports, the surplus would be paid for in specie, but the statements of the Banks show, that in an average of years, the amount of coin imported and exported, balances—incontestably proving, that we are not in a prosperous condition. Again, if what may be said of a community of individuals, may reflect some idea of the condition of a State or nation, and we refer for an example to the planting interest in particular, it will be established that the planters are generally incumbered with debt and complaining, yet tributary every where for many of the necessities of life. As we are essentially an agricultural people, it is fair to conclude, a sympathetic influence pervades other sections of society, and that our habits and pursuits require reform. All which is respectfully submitted.

R. W. ROPER, *Chairman.*

Communicated for the Southern Agriculturist.

PLANTERS AND OVERSEERS.

Mr. Editor,—I read with great satisfaction the pieces signed "*Franklin*," taken from the Columbia (South-Carolinian,) paper, "*ON OVERSEERS.*" I wish they were generally read by our planters, who are so deeply concerned in the conduct of Overseers.

There are two evils which planters labor under; first, they seldom make themselves acquainted with the details of a plantation, thinking it beneath them, and trust altogether to hirelings; secondly, the unhealthiness of the climate which compels them to seek a summer residence, and consequently leave their concerns to the management of others, which makes it a *most imperative* duty to be very cautious who they engage as Overseers; for they place them,

not as clerks in a bank or store, where they may have goods, or valuable commodities under their care, to the value of thousands and tens of thousands of dollars, but they are placed over human beings, whom our heavenly Father has in his wisdom given us, as he did to his faithful servant Abraham, and like him we are bound to have them humanely and kindly treated. Should, then, a Christian master engage any other than a Christian man, to carry out his plans and execute his orders? I answer, No! he should not. But what are the general characters of the Overseers? They are taken from the lowest grade of society, and seldom have had the privilege of a religious education, and have no fear of offending God, and consequently no check on their *natural propensities*; they give way to passion, intemperance, and every sin, and become savages in their conduct; and all they care for, as "Franklin" says, is "to make a large crop, and every thing else may go to ruin under their eyes." With such examples, ought not the planter to be very cautious how he engages his Overseer; he ought to use every means, and spare no trouble to find out the character of the man who offers himself, for, if he satisfies himself with a written one, the probability is, it is a forged one, as I have known many to be. The plan I propose planters to pursue, is to endeavour to get young men of good families and correct habits; and I do not know that a young man who has no profession nor means of getting into business, could do better than become an Overseer to a correct, steady planter for a small salary; and in a few years, he would acquire a sufficient knowledge to take charge of a plantation; and if he keeps up a high character, setting a good example of sobriety, honesty, industry, and virtue, he will command respect from the negroes, and they will obey him with promptness and cheerfulness, which they will never do with severity, or with the want of those qualities I have mentioned above. Such an Overseer would give satisfaction to his employer, who would treat him with kindness and attention, and he would continue at the same place until he had made sufficient to settle himself in a comfortable way, with the consolation of knowing, that he had done his duty to both master and slave.

I have been nearly half a century a planter, and have closely observed the conduct of a great many Overseers, and I must confess, I never knew one of those cruel and dissipated men ever succeed

in the end ; but I have known many worthy Overseers, who have been kind to the slaves, and attentive to their employer's interest, retire after ten, fifteen, or twenty years with a competency, and some lived to be rich and truly respected by all who knew them.

If the planters would follow the advice of "Franklin," and what I have said, they would, in a few years, have quite a different class of men in that profession, and might be the means of assisting many deserving youths who have not the means of getting a livelihood in the State, and who are obliged to go to the West in search of employment. Why are the crops shorter and the expenses larger than formerly ? I answer, neglect on the part of the Overseer and planter. When the Overseer is dismissed for improper conduct, he goes to some planter who has no knowledge of his business, and quite inexperienced, asking lower wages than *he* has ever been receiving, or the *planter* giving ; he engages him, not inquiring carefully of his character. This is a great evil to himself and the community, and this is one great cause, why they are not more circumspect in their behaviour. I consider low wages a secondary consideration, the most important points are, *good character*, and ability for his engagements. A worthy Overseer I consider a *great treasure*, and an acquisition to the neighborhood ; on the contrary, a bad one is a *nuisance* to the surrounding country, and *ruinous* to his employer.

Efforts are now making very generally, all over the country, to instruct the negroes in the truths of Christianity, and how can it be carried out, unless the Overseer can be enlisted in the same cause. Can the avaricious, swearer, sabbath-breaker, drunkard, and immoral man, be a fit person to carry out the views of the minister who instructs them ? Certainly not—he will rather make every effort to oppose him, and turn every thing that is serious into ridicule.

I hope these few hints may prove serviceable to the Planters and Overseers, and tend to establish a new and better system of proceeding, which is much wanted.

A PLANTER.

For the Southern Agriculturist.

EXPERIMENTS WITH MARL.

We are very happy in hearing, that many planters in various parts of the middle and lower districts of our State, are seriously marling their highland crops, in the cultivation of corn, cotton and peas. The number of acres marled by each, is no accurate test of the zeal, faith and industry of the planter—his relative ability to plant more or less—the facility of procuring his marl, and of carting it to his fields—with a variety of minor considerations, all have great weight in our estimate of his enterprise.

In the last April report, published by the Agricultural Society of Black Oak, in St. John's Parish—a section of the State abounding more with marl than almost any other, they state that upwards of 1,200 acres are under cultivation, having been marled in the preceding year. Of these, they state the number of acres marled on twenty-five of the plantations, amounting to 1,113 acres. This report is entitled to the utmost confidence, it being from a Committee of Inspection, in which are some of the most practised, liberal and enlightened planters in the State. They evidently discriminate, not giving the names, but declining to publish the experiments of some, who from want of information or other cause, are not conducting these experiments properly. They have excluded 100 acres of marled land, probably on this account, and others may have escaped their notice altogether. They appear also, to have excluded all who applied the marl this year to the present crop, because it could not have had a sufficient time to become incorporated properly with the soil. We have heard of some persons, and in that neighborhood also, who say, that they are marling their fields, and only apply from ten to twenty bushels per acre. This may proceed from want of information on the subject of marling; it probably will, by its total failure, mislead and discourage them, and such of their acquaintance as are equally ignorant of its inadequacy. We suggest that the Agricultural Societies should warn all within their influence, of the certainty that such experiments will fail, and issue handbills showing the proportions of marl to different descriptions of land, and to the quantity of ve-

getable matter and of animal manure, that it may have to act upon—reducing them to the best state for nourishing the crops.

One gentleman, well informed in other respects, said, that he was about to procure a boat load of marl for his field this last spring; on being asked how he intended to use it, he said, that he would try it fairly, and put at least a double handful of marl to each corn hill. If he did this, he probably lost his crop, and would blame the marl for it, instead of blaming his own inexperience.

Every planter in the middle and low country, should put into his Overseer's hands, a pamphlet teaching the advantages of marl, and the best mode and proportions in using it; insisting that the addition of vegetable matter is indispensable to the beneficial use of marl and other stimulating manures. A.

For the Southern Agriculturist.

SUCCESSFUL MARLING.

We have heard with pleasure of a crop of cotton, now rapidly advancing to maturity, under the influence of marl, the property of Mr. John Ramsay, about twelve miles from Charleston, in St. Andrew's Parish. It has been inspected by at least one practical cotton-planter, an experienced judge in such matters, who expressed himself perfectly satisfied of the great benefit derived from marl applied to this field. Mr. Ramsay has left several rows adjoining each other, in the middle of this field, to which no marl was applied; and we are told, that any one riding along, will decide in a moment which rows were marled and which not---so great is the difference between them in the growth and appearance of the cotton-plant, the size, number, and maturity of its pods, &c.

We would like to learn the particulars of this experiment—having only heard that the marl was scattered on the surface of an old field, recently cleared of its growth, and left to moulder and intermix with all the pine-trash, weeds, &c., that had been collecting during the several years in which it had been resting.

INSECTS WHICH ATTACK THE TURNIP.

We copy the following report of a late lecture before one of the English Farmer's Clubs, from that valuable journal, the *Gardener's Chronicle and Agricultural Gazette* :

"The lecturer confined himself chiefly to three of the most formidable enemies which infest the turnip crop—the turnip fly or beetle, the caterpillar, and the wire-worm.

Respecting the first, (the turnip flies,) it appears that the history of these little pests for a long time puzzled, not only the practical agriculturists, but the man of science likewise; but it is now better understood. They hybernate, or live through the winter in a torpid state, and may be found under the bark of trees, &c.; but, inactive as they are during the winter, on the first indication of spring, they quit their winter quarters for sunny situations, and feed in gardens on cabbage plants, as early as March, and in April they get away to the fields. May and June (in England) are the periods when they are to be most dreaded by the farmer, just as the young turnips are coming into leaf. The sexes pair between April and September, and the female beetle lays her eggs (about one egg daily) on the under side of the leaf. It requires about thirty days to carry the insect through its various stages, up to the time when it becomes a perfect fly or beetle. It remains an egg about ten days, a maggot six days, and a chrysalis fourteen days. It is, however, in their last and perfect stage that these insects are most to be dreaded. It is the beetle that destroys the two first smooth leaves of the turnip by piercing them like a sieve, destroying the cellular tissue, and stopping the growth of the plant. The lecturer then alluded to the effect of lime, sulphur, soot, fumigation, and many other remedies recommended, but did not think they could be depended on. He believed that thick sowing, and the use of artificial manures drilled in with the seed, were more effectual, as the turnip, when in rough leaf, is not in any danger from the attacks of the beetle; therefore, it is evident our first care must be to *force* the young plants' growth, and this can only be done by proper manures.

Just after the turnips have outgrown the attacks of the fly, they are liable to the ravages of the caterpillar, which the lecturer considered as only a less formidable enemy, because there are fewer seasons which produce them in sufficient abundance to injure a crop materially; for when they do become numerous, there is no greater pest. With respect to the remedy, the lecturer said that the only one which he knew was picking them by hand. He knew of some fields that had been cleared of caterpillars by means of a flock of ducks driven on them; but there are some kinds which ducks refuse. About the same stage of its growth the roots of young turnips are exposed to another formidable enemy the wire-worm, which is the most troublesome of all insects to the

agriculturist. It appears that we are yet very imperfectly acquainted with these insects; it is stated that there are upwards of 60 different species of them. It is probable that a very considerable portion of these feed upon our most valuable cultivated plants. The rook will destroy them, but these birds, while searching for other prey, pull up sound and mutilated plants indiscriminately, so that both worms and turnips are united in one common destruction. In this case we should say, 'Save me from my friends.' The lecturer considered that the rooks were increasing too fast; their numbers were so great, that they frequently caused much trouble to the farmer. He would diminish them, but certainly not destroy them altogether."

[*New England Farmer.*]

SULPHATE OF AMMONIA, SULPHATE OF SODA AND NITRATE
OF SODA.

These are very useful preparations and essential materials for manures, they may be used separately or collectively, and but a few experiments are required to detect the great advantages which they are respectively exercising. The *Sulphate of Ammonia* is according to the subscriber's ideas, best employed in a liquid state, say, two to three pounds for a barrel of water, and by sprinkling over the ground morning and evening, the effect is visible within three days; and Mr. Gilbert, of Jersey City, has made the same observation with his cauliflowers; mushrooms may readily be raised in a week; there is no doubt but what the advantages in using these very preparations are two fold. 1st. In planting corn you make the grain sprout quickly, and the grub-worm which is the greatest enemy to the farmer, has inclined to attack the planted seed which at once begins to sprout. 2d. The plant certainly produces an early crop in every instance, and in a pecuniary respect of much service. The *Sulphate of Soda* may be used in a liquid state, but I prefer it in lumps mixed up with dung or horse manure, as it will then gradually decompose, and form with the ammonia devolved from the dung, the various production of salts; it is invaluable for an early potato crop. The *Nitrate of Soda* is by itself, too powerful to use, and may well be mixed with the sulphate, in proportion of one pound of the first, to four pound of the latter.

All the three salts may be used in solution, or in a dry state, and will prove very efficient, say:

2 lbs. Nitrate of Soda.

3 lbs. Sulphate of Ammonia.

5 lbs. Sulphate of Soda.

All mixed up and dissolved in one hogshead of water, if intended for artificial guano; to the above composition, one bushel of bone-dust may be added, and it will be found to be highly useful.

The subscriber is now preparing synthetically the guano, as by the analyses of Dr. Charles T. Jackson, of Boston, and will be able to furnish it at 5 cents per pound.

The price of Sulphate of Soda, is half a cent per pound by the barrel of about 200 pounds.

The price of Nitrate of Soda is 5 cents, and the price of Sulphate of Ammonia is 7 cents per pound.

Compound chemical whale oil soap has stood the test of three years use, and is found beneficial, either as a wash on trees, and with a syringe over the fields, where the marauding insects, such as the ants, (either black, red or white,) curculio, turnip beetle, cocus, rose bugs, leaf lice, peach, apple, and pear tree insect, caterpillars, &c. For further particulars, apply to

DL. LEWIS FEUCHTWANGER,
No. 60 Maiden-Lane.

N. Y. *Far. & Mech.*]

GUANO.

The experiments made with this manure, both in England and this country, go to demonstrate with a certainty that defies all cavil, and holds speculation at bay, that it is a most valuable fertilizer of the soil, and peculiarly adapted to the cultivation of wheat. And as there is a supply in this market at the present, we deem it our duty to call the attention of all wheat growers to the fact. In England, its reputation has become so well established within the last few years, that English merchants have endeavored to *monopolize* the supply, both in South America and on the coast of Africa. In the South American trade of this commodity, we perceive, by advices from England, that they have from sixty to seventy vessels engaged, and have endeavored to appropriate to themselves, by contracts with the South American proprietors, the entire right of procurement. North American enterprise and sagacity have, however, foiled them in their grasping design, and we are gratified to see, by our shipping lists, that cargoes have been already imported into the ports of Baltimore and Boston. By which means, ample opportunities will be afforded to our agriculturists to give fair tests to its virtues.

If one were to look to the various paragraphs that are daily going the rounds through the American press, we would be led to believe, that the *application of Guano to the purposes of agriculture*, was a "new thing under the sun," whereas it is many years since that the *founder* of this journal caused an importation to be made of it, when its virtues as a fertilizer of the soil was fully proved by the best of all tests—experience. But like all other innovations upon the barn-yard and the stable, even against the convictions of

its utility, which rested upon the minds of those who tried it, it was permitted to be laid upon the shelf, where it quietly reposed until some few years since, when the necessities of British husbandmen for manure, forced them to seek among the Islands of the Pacific for this far-famed fertilizer—a fertilizer whose virtues had been familiar to the people of that region for ages.

In South America, owing to the scarcity of rain, it is used in *solution*; but here, the necessity for that mode of applying it does not exist, and all that is necessary, is, to harrow it in, and await the operation of our rains to dissolve it and render it available to the growing plants.

When we consider that from one to two hundred pounds are sufficient to manure an acre; that there is no danger from its use, of either multiplying weeds, or occasioning the grain to fall, we think the deduction a fair one, that it is among the cheapest manures that can be used, and especially so, as its tendency is, to greatly increase the product of grain, and to continue its fertilizing properties for years to the soil.

Let us look at the saving of labor which it effects. As we have observed upon a former occasion, a man may carry to the field, in a two bushel bag, as much as will serve for an acre of ground through a rotation of crops, and effect its sowing in half a day, whereas it would require a team of horses and four or five men to haul out from the stable or barn-yard, manure enough to answer the same purposes and quantity of land. It should be borne in mind too, that in the use of long manure for wheat, danger is always to be apprehended, of a superabundance of straw, a diminution of grain, and the inevitable consequence of lodging.

For *corn*, its virtues, as far as tried, have proved most satisfactory, a spoonful being a full dose for a hill, without the addition of any other manure.

For *wheat*, from the experiments which have come to our knowledge, we should think, that from 100 to 150 pounds would be amply sufficient for an acre.

And in conclusion, we will venture the remark, that, for *tobacco beds*, *Guano* would prove the most valuable top-dressing which could be given them. We make this observation, because we know the difficulty there is in protecting tobacco plants from the fly in their early growth, and we think the *aroma* emanating from this substance, might tend to keep them off, while it would not fail to urge the plants forward and secure them a rapid growth.

[*American Farmer.*]

CURE FOR BURNS.

After opening the blisters, if formed, dip the part in cold water, and then plunge it still wet in cold water for a minute or two.—This prevents the air getting to the burn.

WATER FINDERS, SOMETIMES CALLED "WATER WITCHES."

Does any one believe that in some persons' hands, the forked stick will turn downwards when held over running water? Most people do not. A few days since, I was on Mr. Loring's place, some six miles down the river, and having heard that the tenant professed to have the power, I got him to make the trial for me. He used a forked of the peach tree, about eighteen inches long.—One fork held in each hand, the stick pointing upwards, the elbows against the body, and the palm of the hand turned outwards. A stick held in this way, cannot easily be made to turn without showing some action of the arm. I watched as closely as I could for any such, but could detect nothing. Held over the stream which makes the well, (which he pointed out for Mr. Loring some years since,) the stick would begin slowly to turn towards the man, till the top pointed downward. He knew that there was water here. I then took hold of his hand, and asked him to try it again. The stick turned, but I could not detect any action of the hand. He then held his hands on the ground, and the stick turned. He then held the stick in a different way, and it did not move. Now, the thing that puzzles me is, that this twig turned, making the arc of a circle, being twisted near the hand. When pointing downward, I took the end in my hand, and could feel the motion as it straightened itself. A deceiver might, by muscular effort, cause a twig to turn, and the observer, perhaps, not be able to detect it; but could he make a half circle of it? Another feature which is new to me, is in finding the depth of the water. He holds the point of the stick from him, the ends between the finger and thumb, and it will nod the number of feet deep at which the water will be found. If a trick, this is an easy one. This is open for the investigation of the mesmerists. I think it must be some of Graham's electricity.

C. W. E.

[*Western Farm. & Gardener.*]

HORSE NOSE-BAGS.

Messrs. Editors,—I am indebted to the Cultivator for many valuable hints and much useful information, but nothing of so much importance as that contained in a short article in a late No. which recommends the use of nose-bags instead of baskets for the feeding of horses in the streets: it has already saved the value of my subscription to your paper; and that is by no means all, for instead of sowing the oats about the streets in Boston by the gallon, as my horses used to do, they now *eat* them, and that's a difference of 50 per cent. I calculate; indeed my old shaft-horse has sensibly improved in condition already, for he was a most wasteful beast with the basket. I find also a little cut-hay to be exceedingly beneficial in another way, besides saving the oats from being

thrown out by the horse ; it certainly adds to the healthful properties of the grain, as the horse takes more time to masticate his food, and does not find it so easy to bolt it whole, as when clean oats are given ; any way you can fix it, it is a capital contrivance, and now I look with surprise at the wasteful basket, and wonder what we have been about so long, as not to see the rank robbery it was committing upon us.

B.

[*Boston Cultivator.*]

SIMPLE AND EFFECTUAL REMEDY FOR HOVE IN CATTLE.

Try the remedy of an egg-shell full of tar, before you attempt the barbarous practice of sticking. If two men hold the animal's head straight, a third, by moving the tongue to the right side, can easily put down its throat, egg-shell and tar, and in ten minutes relief will usually take place ; but a second dose has never failed.—Cattle to be kept at a brisk walking pace through the yard, until relieved.

FALL TRANSPLANTING OF FRUIT TREES.

From the 20th of August, to the last of September, has been found a successful time for transplanting strawberries, (these may be done earlier,) pears, plums, and apple trees, currant and raspberry bushes—this according to the season, and when the summer wood has ripened. Take two spadings of top soil to mix with the roots ; make the hole a foot wider than the roots of the tree. Previous to taking up the tree or bush, remove every leaf with a sharp scissors. Take up every tree in the morning of a clear day, and place the roots in a tub of soap suds ; let them remain till the afternoon, or even twenty-four hours.

FALL FODDER FOR CATTLE.

For those who have only one or two cows, and have a plat of ground, when the grass begins to decay sow some Indian corn in drills, filled in with manure if necessary, and covered slightly.—Keep it free from weeds, and every night and morning in the fall you can cut an armful, and it will come out in extra quantity and quality of milk.

SALT ON HAY.

About four or five quarts per ton, is sufficient ; more may produce too much thirst in the animals eating it.